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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,507	06/23/2003	Eric A. Merz	114943	8660
25944	7590	10/05/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			DUDDING, ALFRED E	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/600,507

Applicant(s)

MERZ, ERIC A.

Examiner

Alfred E. Dudding

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)          |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. <u>8/17/04</u> .                                     |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____.  | 6) <input type="checkbox"/> Other: _____.                                   |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murthy (U.S. 6,076,912 A) in view of Kwasnoski et al. (U.S. 2003/0064508 A1).

Murthy discloses a fluid ejector assembly, and a method of manufacturing the fluid ejection assembly, Figure 4A (clearly seen), comprising a heat sink, Figure 4A, element 100, attached to the container, Figure 4A, element 102, the heat sink including a portion molded from a polymer having at least one thermally conductive filler material, Column 3, lines 42 – 44, the portion shaped to dissipate heat; and a fluid ejector module attached to the heat sink, Figure 4A, elements 140 – 144. Murthy discloses that the heat sink includes a plurality of fins extending out from the portion, Figure 4A, clearly seen, Column 3, lines 16 – 18. Murthy teaches that the heat sink is chemically resistant to a fluid ejected by the fluid ejector module, Column 3, lines 38 – 42. Murthy discloses that the fluid ejector assembly includes a container that stores a fluid to be ejected by the fluid ejection module, Figure 4A, element 102 (cartridge holder). Murthy discloses that at least one of the thermally conductive filler is made from: petroleum pitch base material (graphite), Column 4, line 23; a ceramic material, Column 4, lines 23 – 24 (boron nitride), Column 5, line 36 (heat sink and adhesive must have same thermal coefficient). Murthy discloses that at least one thermally conductive material is orientated substantially parallel to an oriented

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flow direction of the fluid ejector module, Figure 4A (the heat sink is a three dimensional apparatus having fins at right angles to each other, clearly seen; therefore, at least one thermally conductive material is orientated substantially parallel to an oriented flow direction of the fluid ejector module.

Murthy fails to teach the claimed invention of a fluid ejector assembly molded from a polymer having at least one thermally conductive filler material having a thermal conductivity greater than  $10 \text{ W/m}^\circ \text{C}$ .

Kwasnoski et al. disclose a polymer (cyclic polyolefin) that has a filler material, and having a thermal conductivity of  $12.5 \text{ W/m}^\circ \text{K}$ , paragraph [0048], Table 3. In this case, K (Kelvin) is equivalent to C (centigrade) as the thermal conductivity is not referenced to a fixed temperature, but to a difference in temperatures.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the polymer of Kwasnoski et al. in the heat sink of Murthy in order to efficiently conduct heat away from the ejector apparatus.

3. Claims 1, 3, 15, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Goto (JP 02187350 A).

Murthy discloses a fluid ejector assembly, and a method of manufacturing the fluid ejection assembly, Figure 1 element 1, comprising a heat sink, Figure 1, element 3, attached to the container (the wall of the ink tank is the heat sink, see Abstract), the heat sink including a portion molded from a polymer having at least one thermally conductive filler material, Abstract, the portion shaped to dissipate heat; and a fluid ejector module attached to the heat sink, Figure 1, clearly seen. Because the ejector assembly and the ink tank (reservoir) are made from the same

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materials, and therefore integral to each other, therefore the coefficients of thermal expansion are the same.

***Conclusion***

**4. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

**5.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alfred Dudding whose telephone number is (571) 272-2144. The examiner can normally be reached on Monday-Friday from 8:30 AM to 4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier, AU 2853, can be reached at (571) 272 - 2149. The fax phone number for this Group is are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 308-0956.

Alfred Dudding



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**Stephen D. Meier**  
Primary Examiner